CLAIMS:

1. A distributed control and/or monitoring system comprising:
a control/monitoring center;
a plurality of field devices having no hardwired communication link to the control/monitoring center and each other, each field device comprising:
a transducer;
a wireless transceiver for communicating wirelessly; and
a power bus for delivering power to each field device.

2. The distributed system of claim 1 wherein each field device further comprises:
a power circuit for controlling power delivery from the power bus to the transducer and to the wireless transceiver within the field device.

3. The distributed system of claim 1 wherein each the power bus is a single wire bearing a voltage.

4. The distributed system of claim 1 wherein each of the plurality of field devices communicate wirelessly with the control/monitoring center.

5. The distributed system of claim 1 wherein some of the plurality of field devices are positioned within close proximity to one another in a cluster, the system further comprising:
a power circuit for controlling power supplied to the cluster of field devices.

6. The distributed system of claim 5 wherein the power circuit further comprises:

a ground loop connected to earth ground for electrically grounding each of the field devices in the cluster of field devices.

7. The distributed system of claim 5 wherein each field device is individually grounded to earth.

8. A distributed system for monitoring an industrial process comprising:

a control/monitoring center;

a plurality of field devices for sensing or altering the industrial process, each field device having a transducer and a wireless transceiver for communicating signals between the field device and the control/monitoring center; and

a wire carrying an unfiltered voltage potential for delivering a voltage potential to each of the plurality of field devices.

9. The distributed system of claim 8 wherein each of the plurality of field devices further comprises:

a voltage regulator for controlling power delivered to the wireless transceiver.

10. The distributed system of claim 9 wherein each of the plurality of field devices further comprises:

a direct connection to a ground.

11. The distributed system of claim 8 wherein two or more of the plurality of field devices, which are in close proximity to one another, constitute a group, and further comprising:

a power supply for stepping down an existing alternating or direct current voltage to a lower voltage, wherein a single wire is connected from each field device to the power supply.

12. The distributed system of claim 8 wherein each field device further comprises:

a power regulation circuit for stepping down an existing alternating or direct current voltage to the voltage potential for delivery to the field device via the wire.

13. The distributed system of claim 8 wherein the voltage potential is less than five volts.

14. A distributed control and/or monitoring system comprising:

a control/monitoring center;

a plurality of field devices, each field device having a transducer;

a plurality of wireless transceivers, each wireless transceiver for sending and receiving wireless signals between the control/monitoring center and one or more of the plurality of field devices, each wireless transceiver being in electrical communication with at least one of the plurality of field devices; and

power supplies for supplying power from an existing power circuit to the wireless transceivers and to the plurality of field devices.

15. The distributed system of claim14 wherein the existing power circuit is a standard AC or DC circuit.

16. The distributed system of claim14 wherein the existing power circuit is a four-wire bus comprising:

a two-wire power bus; and

a two-wire communication bus.

17. The distributed system of claim 14 and further comprising:

a four-wire bus comprising:

a two-wire power bus in electrical communication with each of the power supplies; and

a two-wire communication bus connecting the control center with each field device;

wherein the wireless transducer wirelessly transmits data from each sensor to the control center that is not otherwise transmitted over the two-wire communication bus.

18. The distributed system of claim 14 and further comprising:

a two-wire bus connecting the field devices and the control/monitoring center; and

wherein the wireless transceivers transmit data wirelessly from the field devices that is not otherwise transmitted over the two-wire bus.

19. A method for retrofitting an existing field device network for wireless communications, the method comprising:

installing a first wireless transceiver in communication with a control/monitoring center;

installing a second wireless transceiver on an existing power bus and in communication with one or more field devices; and

configuring the second wireless transmitter to communicate with the one or more field devices and to transmit data wirelessly from the one or more field devices to the control/monitoring center in addition to data transmitted over an existing communication link.

20. The method of claim 19 further comprising:

installing a "smart" field device on the fieldbus network, the "smart" field device having a wireless transceiver, the "smart" field device for providing diagnostic information to the control center.

21. A distributed field device system comprising:

a single-wire power bus; and

a plurality of wireless field devices, each wireless field device comprising:

a transducer;

a wireless transceiver for sending information from the transducer to a control center; and

power circuitry for drawing adequate power from the single-wire power bus to power the transducer and the wireless transceiver.

22. The distributed field device system of claim 21 wherein each of the plurality of wireless field devices is electrically grounded.

23. A field device comprising:

a transducer;

a wireless transceiver;

a power terminal for connecting the field device to a power bus;

a ground connection for electrically grounding the field device; and

an internal power supply circuit connected to the power terminal and the ground connection for supplying power to the transducer and the wireless transceiver.

24. The field device of claim 23 wherein the power bus is a single wire carrying a voltage potential other than zero.

25. The field device of claim 23 wherein the field device is connected directly to ground via the ground connection.

26. A field device comprising:

a housing;

a circuit disposed within the housing, the circuit comprising:

a wireless transceiver for wireless communication with a control/monitoring center;

a transducer; and

an electrical terminal for delivering power to the wireless transceiver and the transducer from an existing power circuit.

27. The field device of claim 26 wherein the existing power circuit is an AC or DC circuit.

28. The field device of claim 26, further comprising:
a ground connection for grounding the circuit.

29. A field device comprising:
a transducer and/or an actuator;
a wireless transceiver; and
a power supply circuit for delivering power to the transducer and/or the actuator and to the wireless transceiver.

30. The field device of claim 29 wherein the power supply circuit is connected to a standard electrical outlet.

31. The field device of claim 29 wherein the field device is connected wirelessly with a network.